



Atty. Dkt. No. 080618-0304  
Application Serial No.: 10/669,175

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Nicole Zitzmann et al.  
Title: USE OF IMINOSUGAR  
DERIVATIVES TO INHIBIT  
ION CHANNEL ACTIVITY  
Appl. No.: 10/669,175  
Filing Date: 09/23/2003  
Examiner: Unknown  
Art Unit: 1614

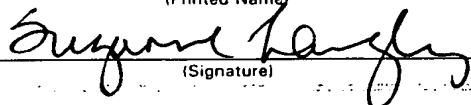
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EL 979071345 US January 20, 2004  
(Express Mail Label Number) (Date of Deposit)

Suzanne Langley

(Printed Name)

  
(Signature)

**INFORMATION DISCLOSURE STATEMENT**  
**UNDER 37 CFR §1.56**

Commissioner for Patents  
PO Box 1450  
Alexandria, Virginia 22313-1450

Sir:

Submitted herewith on Form PTO/SB/08 is a listing of documents known to Applicants in order to comply with Applicants' duty of disclosure pursuant to 37 CFR §1.56. A copy of each listed document, except as noted below, is being submitted to comply with the provisions of 37 CFR §1.97 and §1.98.

The USPTO has waived the requirement under 37 CFR 1.98(a)(2)(i) to submit copies of U.S. patents and U.S. patent application publications when citing and submitting an Information Disclosure Statements in a patent application filed after June 30, 2003 and in an international application that has entered the national stage under 37 USC §371 after June 30, 2003. Accordingly, copies of these types of documents are not being supplied in connection with this application. Reference is being made to Pre-OG Notice from Office of Patent Legal Administration dated July 25, 2003, *Information Disclosure Statements May Be Filed Without Copies of U.S. Patents and Published Applications in Patent Applications filed after June 30, 2003*. However, should the Examiner request any of these documents, Applicants will gladly provide them.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR §1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* art reference against the claims of the present application.

**TIMING OF THE DISCLOSURE**

The listed documents are being submitted in compliance with 37 CFR §1.97(b), before the mailing date of the first Office Action on the merits.

Applicants respectfully request that any listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08 be returned in accordance with MPEP §609.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 CFR §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741.

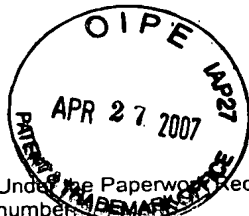
Respectfully submitted,

Date 1/20/04

By M. Scott McBride

FOLEY & LARDNER  
Customer Number: 22428  
Telephone: (414) 297-5529  
Facsimile: (414) 297-4900

M. Scott McBride  
Attorney for Applicant  
Registration No. 52,008



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**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

Date Submitted: January 20, 2004

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Sheet 1 of 3

**Complete if Known**

Application Number	10/669,175
Filing Date	09/23/2003
First Named Inventor	Nicole Zitzmann
Group Art Unit	1614
Examiner Name	Unknown
Attorney Docket Number	080618-0304

**U.S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
	A1	6,355,413	B1	Gage et al.	03/12/2002	
	A2	6,291,657	B1	Platt et al.	09/18/2001	
	A3	5,622,972		Bryant et al.	04/22/1997	
	A4	5,580,884		Platt et al.	12/03/1996	
	A5	5,310,745		Partis et al.	05/10/1994	
	A6	5,286,877		Behling et al.	02/15/1994	
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	A9	5,043,273		Scudder et al.	08/27/1991	
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	A19	4,405,714		Kinast et al.	09/20/1983	
	A20	4,266,025		Kinast et al.	05/05/1981	
	A21	4,246,345		Kinast et al.	01/20/1981	

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document			Name of Patentee or Applicant of Cited Documents	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)				
	A22		WO 01/10429	A2	Zitzmann et al.	02/15/2001		
	A23		WO 99/24401	A1	G.D. Searle & Company	05/20/1999		
	A24		WO 98/35685	A1	Jacob et al.	08/20/1998		
	A25		EP0 455 098	A2	G.D. Searle & Company	02/25/1991		
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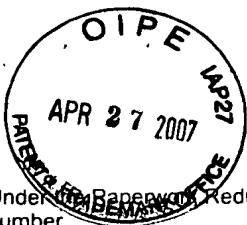
**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>6</sup>
	A26	BERGERON et al., "Calnexin: a membrane-bound chaperone of the endoplasmic reticulum," TIBS 19 - March 1994, Elsevier Scient Ltd. 0968-0004/94 pp. 124-128.	
	A27	BRANZA-NICHITA et al., "Antiviral of N-Butyldesoxynojirimycin against Bovine Viral Diarrhea Virus Coorelates with Misfolding of E2 Envelope Proteins and Impairment of Their Association into E1-E2 Heterodimers," (2001) J. Virol. 75(8), pp. 3527-36.	
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	A31	DUFF et al., "The Transmembrane Domain of Influenza A M2 Protein Forms Amantadine-Sensitive Proton Channels in Planar Lipid Bilayers," Virology 190, pp. 485-489 (1992) 0042-6822/92 Copyright 1992 by Academic Press, Inc.	
	A32	DURANTEL et al., "Study of the Mechanism of Antiviral Action of Iminosugar Derivatives against Bovine Viral Diarrhea Virus," (2001) J. Virol. 75(19): pp. 8987-98.	
	A33	DWEK, et al., "Targeting Glycosylation as a Therapeutic Approach," Nature Reviews/Drug Discovery, Vol. 1, January 2002, pp. 65-75. Glycobiology Institute, Dept. of Biochemistry, University of Oxford, Oxford OX1 3QU, UK.	
	A34	FISCHER et al., "Amantadine blocks channel activity of the transmembrane segment of the NB protein from influenza B," Eur. Biophys J. (2001) 3-: pp. 416-420, DOI 10.1007/s00240100157.	
	A35	GRIFFIN et al., "The p7 protein of hepatitis C virus forms an ion channel that is blocked by the antiviral drug, Amantadine," FEBS Letters 535 (2003) pp. 34-38, Elsevier Science B.V. on behalf of the Federation of European Biochemical Societies.	
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	A37	HAY et al., "The molecular basis of the specific anti-influenza action of amantadine," EMBO Journal, Vol. 4 no. 11 pp. 3021-3024, 1985. Oxford, England.	
	A38	LIN et al., "Processing in the Hepatitis C Virus E2-NS2 Region: Identification of p7 and Two Distinct E2-Specific Products with Different C Termini," (1994) J. Virol. 68(8): pp. 5063-73.	
	A39	LOHMANN et al., "Replication of Subgenomic Hepatitis C Virus RNAs in a Hepatoma Cell Line," (1999) Science, 285(5424) pp. 110-3.	
	A40	MEHTA et al., "α-Glucosidase inhibitors as potential broad based anti-viral agents," FEBS Lett. 1998 June 23; 430(1-2); pp. 17-22.	

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<b>Sheet</b>	3	<b>of</b>	3		

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	A41	MIZUSHIMA et al., "Two Hepatitis C Virus Glycoprotein E2 Products with Different C Termini," (1994) J. Virol. 68(10); pp. 6215-22.		
	A42	MONTAL et al., "Formation of Bimolecular Membranes from Lipid Monolayers and a Study of Their Electrical Properties," Proc. Nat. Acad. Sci. USA 69 (1972) pp. 3561-3566.		
	A43	PAVLOVIC et al., "The hepatitis C virus p7 protein forms an ion channel that is inhibited by long-alkyl-chain iminosugar derivatives," PNAS 2003, May 13; 100(10): pp. 6104-8.		
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	A46	REED et al., "Overview of Hepatitis C Virus Genome Structure, Polyprotein Processing, and Protein Properties," Department of Molecular Microbiology, Washington University School of Medicine, St. Louis, MO, pp. 55-84.		
	A47	SUNSTROM, et al., "Ion Channels Formed by NB, an Influenza B Virus Protein," J. Membrane Biol. 150, pp. 127-132 (1996)		
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	A49	XU et al., "Synthesis of a novel hepatitis C virus protein by ribosomal frameshift," (2001) The EMBO Journal 20(14): pp. 3840-8.		
	A50	ZITZMANN, et al., "Imino sugars inhibit the formation and secretion of bovine viral diarrhea virus, a pestivirus model of hepatitis C virus: Implications for the development of broad spectrum anti-hepatitis virus agents," (2001) Proc. Natl. Acad. Sci. USA, Oct. 12, (21): pp. 11878-82.		

<b>Examiner Signature</b>		<b>Date Considered</b>	
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